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APPLICATION FOR UNITED STATES LETTERS PATENT

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TITLE: LINKED GAMING MACHINES

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## LINKED GAMING MACHINES

### FIELD OF THE INVENTION

5 This invention relates to gaming machines, and more particularly to a plurality of gaming machines in a casino environment (e.g., a number of machines in relative proximity to each other where players are wagering on the results of the gameplay of a respective machine).

### BACKGROUND OF THE INVENTION

10 Slot machines, poker machines, blackjack machines and similar gaming machines are abundant. Some, such as slot machines, may be mechanical devices without any video component. Machines to play card games, as well as slot machines, are more and more based upon a video monitor as the display mechanism for the game, with the game itself governed by a microprocessor-based system.

15 These gaming machines are also not necessarily solitary mechanisms. In certain desired instances they can be interconnected, such as through a LAN in a local environment, or a wide area network (private) or the Internet in a more global application, so that multiple players can participate at the same time. That participation may be in the form of a display which shows bonus game information drawn from a bank of gaming machines linked to that display, such as discussed in EP 0 981 119 A2.

20 The popularity of the games, and these gaming machines, derives from a number of factors, some of which are the apparent likelihood of winning (typically money in a wagering environment), the attractiveness of the gaming machine, and the basic level of entertainment provided by the game/machine itself. It is therefore one general driving force in the gaming industry to come up with new and exciting games and gaming machines which will attract players, entertain them, and promote repeated play.

25 One such effort has been to provide some kind of device or mechanical item associated with the gaming machine, which may furthermore generate movement, sound, a light display or the like. These "attractions" (as used herein, just to use one apt phrase) most typically can take the form of some kind of mechanism on the machine top, or in a

display area formed within the top or elsewhere on (or even nearby), the gaming machine. The attraction may be as simple as recognizable likenesses, such as molded figures of characters from "the Addams Family," formed on a gaming machine having a general theme derivative thereof. As mentioned, some attractions may include animation, either of a mechanical nature or on a video display, or both. Examples of such mechanical tops include an ape climbing a skyscraper, chickens that dance to a bonus game musical score, and mechanical wheels that spin to award a bonus payoff, representative of which are U.S. 5,823,874 and U.S. 5,848,932.

### SUMMARY OF THE INVENTION

The present invention has as one of its principal objectives to provide a method and apparatus for linking a plurality of gaming machines together insofar as the attractions used on the machines, where the attractions have some audio and/or visual aspect in most instances, such as an animation. An integration system is contemplated which operates between linked gaming machines such that some or all of an attraction mechanism in one gaming machine is caused to operate in response to a triggering event occurring in another gaming machine. That triggering event could be the activation of that other machine's attraction mechanism, such as through entry into a bonus round.

In one broad aspect of the invention, the linkage between the gaming machines causes the grouped machines to substantially simultaneously operate their respective attraction mechanisms when one is activated. This could occur at the onset of a bonus round in the triggering machine, for instance. One result can be that all of the attractions operate the same way at the same time. Another result can be that there is a serial presentation made by the linked machines, whereby a group "message" or display is begun in part on one machine and then continued or spread across, or throughout, its neighbors. The linkage could also be that the linked machines are all then placed in a particular gameplay condition, such as all being advanced to a bonus round at the same time.

The present invention in one form is a method for operating a plurality of gaming machines, with an initial step of providing an attraction feature for each gaming machine.

The attraction features are caused to be operated as a group when any one of the linked

gaming machines gives a signal indicative of a predetermined event designed to activate its attraction feature. That predetermined event can be the entry into a bonus round, for instance.

5 The method of operating the linked attraction features can be effected through all of the attraction features being caused to be operated simultaneously, such as with each performing the same activity at the same time. Alternatively, the attraction features could be caused to be operated in a staggered manner, e.g., one being started after another, such as in a coordinated routine or other presentation which visually/aurally progresses from one machine to another.

10 Where the activating event is entry into a bonus round, the method advantageously has all of the attraction features continuing to be operated until none is in a bonus round.

15 The invention is also a coordinated group of gaming machines. Each machine has a basic game which a player can play. Typically, the gaming machines would include a wagering device. An attraction mechanism is associated with each gaming machine, such as on the top of the machine. A controller operates the attraction mechanism upon an activation signal.

20 A communication network links the controllers. This network could be between machines themselves, or could be a centralized link which then broadcasts to the machines as a group. A signal generator yields an activation signal upon a predetermined event in operation of a gaming machine, such as entry into a bonus mode. Each machine preferably has such a signal generator, with the activation signal from one machine then being communicated to the controllers of the other linked machines, to thereby operate the attraction mechanisms as a group.

25 One attraction mechanism currently contemplated is a mechanical apparatus which has external moving parts, with the parts being caused to move upon operation. Most preferably, the mechanical apparatus is a figure having one or more movable limbs, which is caused to dance. As noted above with respect to the method of the invention, these dancing figures could be caused to be operated simultaneously, or in some other  
30 manner, whether synchronized or not.

Instead of a mechanical apparatus with visually moving parts, a contemplated variation would be having the attraction feature as a projected display, which would have a visual output when operated. The display may be a video monitor, laser projection apparatus, CRT, dot matrix, or the like. That visual output may take a wide variety of forms, such as a dancing figure, some other graphic or a message, just to name a few. Such a message may be communicated in a coordinated presentation across a bank of gaming machines, for instance, with each machine providing a portion of the message.

The objectives, attributes and advantages of the present invention will be further understood upon consideration of the following detailed description of an embodiment of the invention, taken in conjunction with the accompanying drawings, in which:

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

FIGURE 1 is a group of linked gaming machines in accordance with the present invention;

FIGURE 2 is a schematic diagram showing a linkage arrangement for gaming machines in accordance with the present invention;

FIGURE 3 is an embodiment of the gaming machine having a laser projection display made in accordance with the present invention; and

FIGURE 4 is a schematic diagram of elements making up a laser projection unit.

#### **DETAILED DESCRIPTION OF AN EMBODIMENT OF THE INVENTION**

As noted above, the present invention is generally related to the provision of an attraction mechanism (sometimes also referred to herein as a "feedback" mechanism) in, on or in proximity to a gaming machine. The attraction or feedback mechanisms are then linked in some manner.

In a presently contemplated embodiment, a plurality of gaming machines 10a, 10b through 10n have attractions in the form of a mechanical dancing figure 12a, 12b through 12n, respectively. This figure, depicted herein in a manner perhaps reminiscent of "Elvis," is located on the top of the gaming machine 10. The details of the manner by which the "Dancing Elvis" is animated are not set forth herein, being considered to be well within the scope of one of ordinary skill in the art. Suffice it to say, however, that

movement of one or more limbs, and perhaps the head and torso also, may be readily accomplished.

Further, while an animated dancing figure is disclosed in this embodiment, the attraction mechanism is not so limited, and could include sound or music alone, a light show, or any combination thereof. Moreover, it could include some other sense besides  
5 visual or aural, such as a “shaking” aspect (in an earthquake theme, for instance).

Referring to Figure 2, this block diagram shows one way in which a bank of gaming machines 10a through 10n could be connected for operation in a linked arrangement according to the present invention.

Each machine 10a through 10n would have its own CPU and programming associated with the base gameplay (such as video slots, for instance). A video display 14 is part of each gaming machine, with player input controls of known type for wagering and gameplay indicated at panel 16.  
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In this embodiment, each gaming machine includes a Bonus Game Unit indicated schematically at 18a, 18b through 18n. The Bonus Game Unit operates the dancing figure 12 for a respective gaming machine.  
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A gaming machine 10a, 10b through 10n communicates with its Bonus Game Unit using a standard RS-232 serial interface. However, it may communicate using any suitable configuration or protocol. The gaming machine 10a, which is representative, has a CPU 20 for operating its game with associated programming. ROM 21 and RAM 22 are of standard type, along with inputs/interfaces for display controls 24, buttons/meters/wagering registration devices (coins, bills) 26, payout (hopper) 27, along with sounds and lights for the game indicated at 28, and printer and online system devices 29. There is a bonus interface indicated at 30, which communicates with the gaming machine interface 32 of the Bonus Game Unit 18a.  
20  
25

In this embodiment, the Bonus Game Unit 18a has its own CPU 40, with associated ROM 42, RAM 43 and dancing figure controller 44. The dancing figure need not be operated by a separate Bonus Game Unit, however, and could be as easily controlled by the CPU 20 of the gaming machine. The gaming machine also can use some other communication with the Bonus Game Unit besides that described above, for that matter. Again, from the standpoint of the present invention, there is provided some  
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manner of communication between multiple gaming machines insofar as their attraction or feedback mechanisms are concerned.

All of the Bonus Game Units 18a, 18b through 18n of Figure 2 are on a local area network via a LAN control 45 using a 10 Base T Ethernet network and hub. Any other  
5 suitable networking arrangement could be used, such as USB, RS-422, serial daisy-chain, IEEE-1394 and the like, as well as a standard casino online system (sometimes referred to as a player tracking system).

In the embodiment discussed herein, the gaming machines 10a, 10b through 10n would (but of course need not) play appropriate thematic music upon initiation of a bonus  
10 round (which might occur during the course of the underlying base game, or at the end of the base game) for a given machine. For example, assuming that the player of gaming machine 10a has triggered the bonus round, music for that machine 10a would play, along with whatever other light display (if any) that may be part of the presentation, and the animated figure 12a would dance. Simultaneously in this embodiment, all of the  
15 other linked figures 12b, 12c through 12n would likewise begin to dance.

One way to accomplish this is, at the start of a bonus round, the respective machine entering the bonus round -- here machine 10a -- sends out via its Bonus Interface 30 a "begin bonus round" message (signal) to its respective Bonus Game Unit 18a. That Bonus Game Unit 18a then communicates (rebroadcasts) the message to all of  
20 the other linked Bonus Game Units on the network, causing their figures 12b, 12c through 12n to dance (along with activation of whatever other elements may be associated with the dancing sequence). The various figures 12a through 12n will continue to dance until a signal indicating that the bonus round of gaming machine 10a has concluded.

In order to accommodate a situation where more than one gaming machine may enter into the bonus round at one time (i.e., one player enters the bonus round for his machine while another player is still in her bonus round), each Bonus Game Unit 18a, 18b through 18n will count the number of "begin bonus round" messages that may be  
25 registered by the entire group during an interval when an initial "begin bonus round" message has gone out. Each Bonus Game Unit will then decrement one from that total  
30 for each "end bonus game" signal thereafter received, until the counter reaches zero,

whereupon no bonus game is in progress, and all of the dancing and related hoopla associated with the attraction feature ceases.

As should therefore be apparent from the foregoing illustration, the activation of the attraction mechanism of other machines besides the one which actually entered the bonus round will serve to advertise that a lucky player has achieved the bonus round. This should inspire and motivate the other players to press on to achieve the same end, providing positive reinforcement for their efforts. In this same regard, there are various enhancements that may be made, such as an indicator light 33 on the gaming machine which flashes on the particular machine in the bonus round to identify the lucky player.

A variation on the foregoing illustrative embodiment would be to have all of the linked machines enter the bonus round when any one achieves the bonus round. This is not considered to be a particularly advantageous approach, however, since it can instill somewhat slothful play in a group of machines while each player waits for the other to trigger the bonus sequence. It can still nonetheless serve as an attraction to players for the linked group of machines over others which are not so linked.

Another variation is to assign each gaming machine 10a through 10n a sequential identification number. Either through programming contained in the gaming machine or the Bonus Game Unit, commands would have certain figures 12a through 12n activated in a planned sequence. This could be, for instance, a dance sequence which is initiated on machine 12a and then continued through the other machines *seriatim*. Each machine on the LAN would begin animating its respective figure 12a through 12n upon receiving a command that matches its identification number. Broadcasting the identification numbers consecutively with a time delay between each identification number would therefore effect a staggered animation sequence running left to right for the group, for example. The broadcast sequence could just as easily be for some other organization of the linked units, such as a more randomized-like activation of machines throughout the room. These are but two ways to choreograph the linked machines.

Instead of the mechanical "Dancing Elvis" (e.g., 12a), a projected figure could be used. This would be accomplished, for instance, by using a laser dome on top of each of the gaming machines. Alternatively, this could be done using a video monitor or LED, CRT, or other like display. The means of displaying the attraction is completely at the

discretion of the maker, and does not limit the invention in its broadest expressions. This dome contains a laser with appropriate optics, mirrors and drivers, along with a computer program to project a laser image of the dancing figure on the dome. Accomplishing all of the foregoing is well within the skill of the art. That being said, Figures 3 and 4 relate to just such a domed laser projection arrangement for the attraction feature. Here, gaming machine 10 has a semi-transparent or translucent domed top 50. Internal to the dome is the output of a laser projection apparatus, which has its x-y beam directing apparatus indicated at 52. The projection system generally is comprised of a laser 53, such as a He-Ne type or any other suitable laser, whose output is then directed by a galvanometer type scanner or the like 54, which manipulates the beam in the x-y plane. The scanner 54 is operated by a controller 55 driven by display data, input by the CPU 20 or 40. The display generated by the foregoing system, here a laser outline of a figure 12a', is projected on the inside of the dome, but is visible from the outside. Details of such a projection system may be gleaned from U.S. 5,130,838 for instance. Another laser projection system is disclosed in U.S. 6,176,584 using a dome-shaped structure upon which the image is displayed, and an alternative spherical projection system is set forth in U.S. 5,582,518. Conventional lasers, scanners, modulators and other aspects of the projection system are well known, as U.S. 5,317,348 notes and discloses.

This projection approach also provides some further flexibility, such as in yielding the ability to provide a message, or other graphics besides the dancing figure. One adaptation would be to have the machine that has entered into the bonus round project the value of the round as it is being accumulated for all to see; meanwhile, all of the other linked machines have the animation of the dancing figure in progress thereon. The linked displays could furthermore be subject to the same type of broadcast sequencing described above, so that a word, phrase or other message might be spelled out across the displays as a whole, with or without the intervention of a dancing figure.

Thus, while the invention has been described with respect to a certain embodiment, those of skill will recognize variations, modifications and adaptations in materials, arrangement, application and the like which will still fall within the spirit and scope of the invention, and which are intended to be encompassed, as set forth hereafter in the claims.